

II. Remarks

Claims 1, 2, 4-7, and 9-49 were pending in this application and have been rejected. The present amendment cancels claims 5, 13-14, 21, 28-29 and 33-49, and amends claims 1 and 18 to more particularly point out and clarify Applicant's invention. No new matter has been added by the present amendment. After this amendment, claims 1-2, 4, 6-7, 9-12, 15-20, 22-27 and 30-32 will be pending.

Reconsideration of the application in view of the above amendments and following remarks is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 1-2, 4-6, 9-22, 24-36, 38-44 and 46-49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,413,378 issued to Steffens, Jr., et al. ("Steffens"), in view of U.S. Patent No. 6,443,488 issued to Kippelt, et al. ("Kippelt"). Claims 5, 13-14, 21, 28-29, 33-36, 38-44 and 46-49 have been canceled and accordingly, the rejections of claims 5, 13-14, 21, 28-29, 33-36, 38-44 and 46-49 are now moot. In view of the amendments and remarks contained herein, Applicant respectfully submits that the rejections of claims 1-2, 4, 6, 9-12, 15-20, 22, 24-27, and 30-32 are traversed.

Claims 1 and 18 have been amended to recite that the processor unit is configured to continuously or repeatedly update the reference value determining a new reference value when the seat is moved. The new reference value is stored when a new minimum belt length remaining withdrawn from the retractor is

determined that is less than the current minimum length. The new reference value is determined from the minimum length of the belt withdrawn from the retractor after the seat is moved. The processor unit is further configured to process signals corresponding to the new minimum belt length and the new position of the seat. Support for these amendments may be found in Applicant's application at paragraphs [0064]-[0067].

Steffens discloses an apparatus 20 for controlling an occupant restraint system including a plurality of sensors 22 operatively connected to a controller 24. A seat position sensor 30 is operatively connected between a vehicle seat 32 and is electrically connected to the controller 24 and provides an electrical signal indicative of the position of the seat 32. *Steffens* at col. 2, lines 61-69. A seat buckle switch 60 is electrically connected to the controller 24 and provides an electrical signal to the controller 24 indicative of whether the seat belt tongue and buckle are in a latched condition. A web or belt payout sensor 64 is operatively connected to a seat belt retractor 66 and is electrically connected to the controller 24 to provide electrical signals indicative of the amount of seatbelt webbing 50 that has been pulled from the retractor 66. *Id.* at col. 3, lines 18-28. An occupant weight sensor 70 is operatively mounted in the bottom of cushion 38 of the seat 32 and is electrically connected to the controller 24 to provide an electrical signal indicative of the measured weight of an object located on the seat cushion 38. A first occupant position sensor 80 is mounted in the dashboard 82 and is aimed at the seat back 40 and is electrically connected to a controller 24. A second position sensor 84 is mounted in the back portion of the seat and aimed towards the front of the vehicle

and is electrically connected to the controller 24. A third position sensor 86 is mounted in the side door forward of the normal occupant seating location and is aimed sideways across the vehicle and is electrically connected to the controller 24. The sensors 80, 84 and 86 are used to determine the occupant position relative to the deployment door 150 of an inflatable occupant restraint system 100. *Id.* at col. 3, lines 29-51.

When the controller 24 actuates the ultrasonic sensors 80, 84 and 86 each one outputs an associated ultrasonic pulse and generates an electrical signal indicative of an associated return echo pulse. By monitoring the time between the transmitted pulse and the received echo pulse, the controller 24 determines the position of an occupant relative to each of the sensors. The controller 24 then compensates the values of the distance measured by the front sensor 80 and the rear sensor 84 based on the seat position sensor 30 and the seat incline sensor 36. *Id.* at col. 3, lines 52-69. The controller 24 includes a memory location 140 for storing a lookup matrix table 142. The lookup table is divided into a plurality of occupant position ranges 144 and a plurality of occupant weight ranges 146. *Id.* at col. 5, lines 12-20.

As illustrated in Figures 4-9, the control process begins with step 200 which occurs at the power up of the vehicle. In step 200, all internal states of the controller 24 are set to a predetermined initial value. The controller then proceeds through a series of steps beginning at 202 and determines the occupant weight and at 206 and the occupant position at 246. In Figure 7, the controller then reads the position and weight ranges at 300 and looks up the position range at 302 and the weight range at

304 in the look up matrix table 142 and accordingly adjusts the airbag and seatbelt systems at 314, returning then to step 202 to repeat the process over again.

Notably, the only reference values disclosed for comparison within the system 20 are the occupant position ranges 144 and occupant weight ranges 146 which are stored in the lookup matrix table 142. The ranges 144 and 146 are fixed and are not updated with new ranges or values when the seat is moved. Accordingly, it cannot be said that Steffens discloses updating a predetermined reference value with new reference values when the seat is moved. Moreover and as noted by the Examiner, Steffens fails to disclose measuring the length of the belt withdrawn from the retractor relative to a predetermined reference value which is "the minimum belt length remaining withdrawn from the retractor." Office Action at page 3.

Kippelt discloses a device for protecting a vehicle occupant that includes an airbag, a first sensor which detects the presence of an object, and a second sensor for measuring the unrolled belt length of a belt device which is assigned to a vehicle seat. An evaluator controls the inflation of an airbag as a function of the detection of an object as a function of the belt length. In particular, the second sensor detects the unrolled belt length of a belt device and the evaluator determines a change in the unrolled belt length from a currently measured unrolled belt length to a previously measured unrolled belt length and correspondingly controls inflation of an airbag. The change in belt length is determined within a predefined time period. *Kippelt* at Abstract, col. 3, lines 45-67 and col. 4, lines 60-67.

This is unlike Applicant's invention. Specifically, the previously measured unrolled belt length is continuously updated with unrolled belt lengths based on a

predetermined preceding time period and is not based on a minimum unrolled belt length when the seat is moved. Accordingly, the previously measured unrolled belt length of Kippelt is for determining the relative position of the occupant with respect to time (i.e. relative with respect to where the occupant was a moment earlier). Applicant's recited predetermined reference value is updated with a new reference value based on the minimum belt length remaining withdrawn from the retractor when the seat is moved that is less than the current minimum length which functions as an absolute reference to determine the position of the occupant with respect to time and which adjusts based on the position of the seat to provide a new absolute reference with respect to time. Accordingly, the previously and currently measured unrolled belt lengths of Kippelt are not analogous to Applicant's claimed predetermined and new reference values.

Neither Steffens nor Kippelt, independently or in combination, disclose, teach, or suggest the present invention recited in claims 1 and 18. More specifically, neither Steffens nor Kippelt disclose, teach, or suggest a processor unit that is configured to determine a new reference value when the seat is moved and storing the new reference value when a new minimum belt length remaining withdrawn from the retractor is determined that is less than the current minimum length, the new reference value being determined from the minimum length of belt withdrawn. In that Steffens and Kippelt lack the noted elements of claims 1 and 18, the rejections based thereon should be withdrawn. Accordingly, Applicant believes that claims 1 and 18 and their dependent claims 2, 4, 6, 9-12, 15-17, 19-20, 22, 24-27, and 30-32 are in a condition for allowance.

Claims 7, 23, 37 and 45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Steffens in view of Kippelt, and further in view of U.S. Patent No. 5,760,684 issued to Orbach ("Orbach"). Claims 37 and 45 have been cancelled by the present amendment and accordingly, the rejections of claims 37 and 45 are now moot. In view of the amendments and remarks contained herein, Applicant respectfully submits that the rejections of claims 7 and 23 are traversed.

Since claims 7 and 23 depend from either claim 1 or claim 18 and since Orbach fails to disclose a processor unit that is configured to determine a new reference value when the seat is moved and storing the new reference value when a new minimum belt length remaining withdrawn from the retractor is determined that is less than the current minimum length, the new reference value being determined from the minimum length of belt withdrawn, the combination of Steffens, Kippelt and Orbach cannot render the claims of the present invention as obvious. The rejection under § 103(a) is therefore improper and should be withdrawn. Accordingly, Applicant believes that claims 7 and 23 are in a condition for allowance.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is requested.

Respectfully submitted,

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